Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for observing high-altitude neutral air, comprising the steps of:

discharging ion particles so as to be trapped ~~with~~by magnetic field lines of the earth,

colliding said ion particles with high-altitude neutral air to generate high velocity neutral particles through charge exchange, and

~~trapping~~detecting said high velocity neutral particles to determine the distance to said high-altitude neutral air from at least one of the discharging positions of said ion particles and the ~~trapping~~detected positions of said high velocity neutral particles ~~on~~from the period of time between the ~~discharging timings~~time of discharge of said ion particles and the ~~trapping timings of~~time of detecting said high velocity neutral particles, to determine the moving direction of said high-altitude neutral air ~~on~~from the ~~trapping~~detected direction of said high velocity neutral particles, and to determine the ~~space~~spatial position of said high-altitude neutral air.

2. (Currently Amended) The observing method as defined in claim 1, wherein the density of said high-altitude neutral air is determined ~~on the trapping~~by the detection frequency of said high velocity neutral particles.

3. (Currently Amended) The observing method as defined in claim 1, wherein the composition of said high-altitude neutral air is determined ~~on~~by measuring the changes in kinetic energy of said high velocity neutral particles ~~for said ion particles~~.

4. (Currently Amended) The observing method as defined in claim 1, wherein said ion particles ~~are made~~comprise at least one of krypton particles ~~and/or~~and xenon particles.

5. (Currently Amended) The observing method as defined in claim 1, wherein said ion particles are discharged in ~~pulse.~~pulses.

6. (Currently Amended) The observing method as defined in claim 1, wherein the discharge of said ion particles ~~are discharged in modulation.~~is modulated.

7. (Original) A device for observing high-altitude neutral air, comprising:

an ion source disposed on an orbit of the earth, and

a neutral particle analyzer disposed on an orbit of the earth.

8. (Original) The observing device as defined in claim 7, wherein said ion source discharges ion particles so as to be trapped with magnetic field lines of the earth.

9. (Currently Amended) The observing device as defined in claim 8, wherein said ion particles ~~are made~~comprise at least one of krypton particles ~~and/or~~and xenon particles.

10. (Currently Amended) The observing device as defined in claim 8, wherein said ion particles are discharged in ~~pulse.~~pulses.

11. (Currently Amended) The observing device as defined in claim 8, wherein the discharge of said ion particles ~~are discharged in modulation.~~is modulated.

12. (Currently Amended) The observing device as defined in claim 8, wherein said neutral particle analyzer ~~traps~~detects high velocity neutral particles ~~which are~~ generated ~~from said ion particles through the collision of said ion particles with high-altitude neutral air and the charge exchange with said ion particles.~~as a result of charge exchange between said ion particles and high-altitude neutral air at the time of their collision.

13. (Original) The observing device as defined in claim 7, wherein said ion source and said neutral particle analyzer are mounted on the same space satellite.

14. (Original) The observing device as defined in claim 7, wherein said ion source and said neutral particle analyzer are mounted on respective difference space satellites.